



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 25 October 2001 (25.10.2001)

PCT

(10) International Publication Number WO 01/79569 A1

Charles, E., Jr. [US/US]; 571 Arden Road, Columbus,

OH 43214 (US). POOLE, John, E. [US/US]; 6251 Mound

(51) International Patent Classification⁷: C22B 9/02, C23C 14/34

(21) International Application Number: PCT/US01/40473

(22) International Filing Date: 9 April 2001 (09.04.2001)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/197,790 14 April 2000 (14.04.2000) US 60/215,037 29 June 2000 (29.06.2000) US 60/249,978 20 November 2000 (20.11.2000) US View Place, Grove City, OH 43123 (US). **LEYBOVICH, Alexander** [US/US]; 5283 Gillette Avenue, Hilliard, OH 43026 (US). **ZHU, Lin** [US/US]; 3092 Wyandot Drive, Springfield, OH 45501 (US).

(74) Agents: PEACOCK, Bruce, E. et al.; Biebel & French, 35 East First Street, Dayton, OH 45402 (US).

(81) Designated States (national): JP, KR, US.

(84) Designated States (regional): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

(71) Applicant (for all designated States except US): TOSOH SMD, INC. [US/US]; 3600 Gantz Road, Grove City, OH 43123 (US). Published:

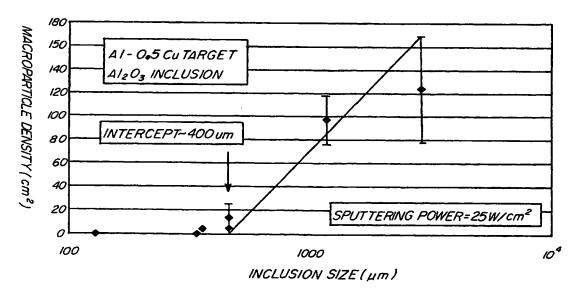
with international search report

(72) Inventors; and

(75) Inventors/Applicants (for US only): WICKERSHAM,

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SPUTTER TARGETS AND METHODS OF MANUFACTURING SAME TO REDUCE PARTICULATE EMISSION DURING SPUTTERING



(57) Abstract: Methods for reducing inclusion content of sputter targets and targets so produced are disclosed. Inclusions (93) may be reduced by adding a small amount of Si to the molten A1 or molten A1 alloy followed by filtering of the molten metals through a filter medium (175). Targets having substantially no inclusions (93) therein of greater than about 400µm are especially useful in the sputtering of large flat panel displays and result, upon sputtering, in a reduction in the amount of macroparticles sputtered onto the substrate.